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# SCIENCE

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MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

## THE CONSTRUCTION OF THE HEAVENS<sup>1</sup>

ALTHOUGH at the present time our minds are largely absorbed by the war, the meeting of the British Association in Manchester indicates that we consider it right to make our annual review of scientific progress. I shall therefore make no apology for choosing the same subject for my address as I should have chosen in other circumstances. It is a subject far removed from war, being an account of the manner in which astronomers have with telescopes and spectroscopes investigated the skies and the conclusions they have reached on what Herschel called "The Construction of the Heavens."

Our knowledge of the fixed stars, as they were called by the old astronomers, is of comparatively recent origin, and is derived from two sources: (1) the measurement of small changes in the positions of the stars in the sky, and (2) the analysis of the light received from them and the measurement of its amount. To this end the numerous instruments of a modern observatory have been devised. The desire to examine fainter objects, and still more the necessity of increasing the accuracy of observations, has brought about a continuous improvement in the range and accuracy of astronomical instruments. Methods which had been perfected for observations of a few stars have been extended so that they can be applied to a large number. For these reasons the progress of sidereal astronomy may seem to have gone on slowly for a time. The more rapid progress of recent years arises

<sup>1</sup> Address of the President of the Section of Mathematics and Astronomy at the Manchester meeting of the British Association for the Advancement of Science.